**NHS GREATER GLASGOW & CLYDE**



**JOB DESCRIPTION**

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| 1. **JOB IDENTIFICATION**
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| Job Title: | Scientific Lead (Dosimetry & Equipment)Consultant Clinical Physicist |
| Responsible To: | Head of Radiotherapy Physics |
| Department(s): | Radiotherapy Physics, Department of Clinical Physics and Bioengineering (DCPB) |
| Directorate: | Diagnostics |
| Operating Division: | Acute |
| Job Reference: |  |
| No of Job Holders: | 1 |
| Last Update (insert date): | November 2024 |

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| 1. **JOB PURPOSE**
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| The Scientific Lead (Dosimetry & Equipment) (Consultant Clinical Physicist) is responsible for the comprehensive scientific and technical service provided by the Radiotherapy Physics Dosimetry & Equipment group to the Beatson West of Scotland Cancer Centre and is responsible on a rota for the provision of Physics services at the Satellite (Monklands). This post is within Radiotherapy Physics which is part of the Department of Clinical Physics and Bio-Engineering (DCPB). The main role of this post is to ensure a high quality and innovative radiotherapy dosimetry and equipment management service is provided. This will include devising and implementing new and complex dosimetric and quality assurance procedures, commissioning new delivery techniques and systems, and implementing a range of service developments. The postholder leads staff in this Section through its line management structure and is responsible for its systems of work, to ensure that an effective service is provided to the Beatson.The postholder is a state registered Clinical Scientist and a certificated Medical Physics Expert. |
| 1. **ROLE OF THE DEPARTMENT**
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| Radiotherapy Physics provides a comprehensive clinical physics service to the Beatson West of Scotland Cancer Centre, which is one of the largest UK cancer treatment centres providing radiotherapy treatment for more than 7,000 patients per annum in the West of Scotland. Its main base is at Gartnavel General Hospital, Glasgow with a Satellite Facility located at Monklands Hospital in Airdrie.The Department of Clinical Physics and Bioengineering (DCPB) provides specialist medical physics and clinical engineering services to NHS Greater Glasgow and Clyde and other West of Scotland Health Boards. These include Medical Equipment Management, Clinical Engineering, Nuclear Medicine, Core Services (Health Physics, MRI Physics, Radionuclide Dispensary and PET Radiopharmaceutical Production Unit) and Radiotherapy Physics. It is one of the largest medical physics and clinical engineering departments in the UK, comprising over 350 staff. |
| 1. **ORGANISATIONAL POSITION**
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| The Scientific Lead (Dosimetry & Equipment), whose organisational position is shown on the attached Organisation Chart, is a member of the Radiotherapy Physics Senior Management Team.The postholder:* 1. Is responsible to the Head of Radiotherapy Physics for delivering a comprehensive clinical scientific radiotherapy dosimetry and equipment management service to Specialist Oncology Services (SOS).
	2. As a member of the Radiotherapy Physics Senior Management Team, plays a lead role in the strategic direction, management and organisation of the comprehensive clinical scientific and technical physics services provided to the Beatson West of Scotland Cancer Centre and its satellite facility, ensuring that the highest possible level of accuracy and safety of radiotherapy cancer treatment is achieved.
	3. Is responsible for the management of the Clinical Physics staff within the Dosimetry & Equipment grouping, comprising Technical Services, Dosimetry, Clinical Radiotherapy Systems and Quality Management.
	4. Works closely on a daily basis with the Scientific Lead (Treatment Planning, Brachytherapy & Imaging) to deliver optimised and effective services across the full range of clinical scientific and technical support provided to the Beatson by their teams, including at the satellite facility.
	5. Liaises closely with the Head of Therapeutic Radiography and lead therapeutic radiographers to ensure the dosimetry and equipment management service provided to radiotherapy meets operational requirements.
	6. Deputises for the Head of Radiotherapy Physics for specified duties as required.
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| **5. SCOPE AND RANGE** |
| Referrals for treatment of the full range of malignant disease originate from six Health Boards (Ayrshire and Arran, Dumfries and Galloway, Forth Valley, Greater Glasgow and Clyde, Highland and Lanarkshire) and for non-routine specialised treatments from all the Scottish Health Boards.* 1. Radiotherapy Physics consists of Clinical Scientists (Clinical Physicists) and Clinical Technologists organised in three groups: Equipment and Dosimetry, Treatment Planning, Brachytherapy & Imaging and the Clinical Physicist Pool. Radiotherapy Physics has its own programme of ongoing scientific research and development.
	2. External beam radiotherapy treatments are provided using eleven linear accelerators at the Beatson (Glasgow) and two accelerators based in Monklands, which together with CT simulators, MR Simulator, treatment verification systems and a low energy x-ray treatment unit have a capital value in excess of £30M.
	3. Radiotherapy Physics staff work closely with multidisciplinary teams of Clinical Oncologists, Radiographers and Nurses. Radiotherapy Physics supports a wide range of specialist clinical services by carrying out radiotherapy treatment planning, brachytherapy physics, radiation dosimetry, equipment management and quality assurance, and by supporting medical imaging and networked radiotherapy patient information systems. Staff lead and support clinical developments and research, and provide education for multidisciplinary staff, trainees and students. This includes the delivery of post graduate teaching courses for the University of Glasgow.
	4. Within Dosimetry & Equipment, Radiotherapy Physics staff work within three areas to provide a complete scientific support service for Beatson radiotherapy treatment, quality and networked radiotherapy systems. These areas are Dosimetry, Quality Management and Clinical Radiotherapy Systems. Dosimetry & Equipment also incorporates the Radiation Technology management structure. Across these fields clinical scientists and technologists will provide scientific support in the end to end lifecycle management and clinical application of radiotherapy equipment and systems used in the Centre, including calibration of its linear accelerators and brachytherapy equipment according to national standards and protocols, measuring scientific data to allow reliable and accurate planning calculations and providing a clinical in-vivo dosimetry service. This includes a range of duties and activities including the planning and design of new radiotherapy facilities, supporting major capital equipment procurements, including preparing equipment specification and assessing tender responses, supervising and undertaking equipment commissioning and acceptance testing to national standards, medical equipment and system management and administration, developing and implementing new techniques and technologies, undertaking software development, designing new quality assurance and performance testing regimes, project management, and ensuring radiation hazards are managed according to regulatory requirements for patient and staff safety.
	5. Staff within the Service, some of whom may be State Registered Clinical Scientists, may be delegated to undertake specific roles and this may include acting as a Medical Physics Expert as required by the Ionising Radiation (Medical Exposure) Regulations 2017, and to act as System Manager, and/or System Administrator, for the Centre’s clinical radiotherapy and information management systems.
	6. Work carried out within the Service complies with the Beatson’s ISO 9001:2015 Quality Management System and applicable legislation, including the Ionising Radiations Regulations 2017 (IRR 2017) and the Ionising Radiation (Medical Exposure) Regulations 2017 (IR(ME)R 2017). Staff participate in the ongoing development of quality systems and procedures and the Service currently working towards UKAS accreditation against BS 70000:2017.
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| **6. MAIN DUTIES/RESPONSIBILITIES** |
| 1. **Managerial**

The postholder will act with a high degree of autonomy within the specialist areas of the service. Work is self-directed, prioritised and managed. Clinical work is supported on demand to agreed deadlines.* 1. Working within the Radiotherapy Physics Senior Management Team to plan, design, prioritise and deliver specialist scientific services across the wider range of Radiotherapy Physics to meet the clinical and service requirements, and maintain the Beatson as a centre of excellence through innovation and continuous development.
	2. Responsible for the provision of Dosimetry & Equipment services including the planning, design, prioritisation and delivery of specialist scientific and technical support provided therein at both Beatson (Gartnavel) and Beatson (Monklands). This includes the management and organisation of its sub sections including Technical Services, Dosimetry, Clinical Radiotherapy Systems and Quality Management. Ensures that staff are trained and available to support clinical demand, and that systems and procedures are fully maintained.
	3. Deputise for the Head of Radiotherapy Physics, as required.
	4. Responsible for the line management, scientific and professional, and the supervision of the staff in their team including absence control, staff rostering, leave arrangement, work out of hours, working conditions, staff development, training etc. Participates fully in recruitment, staff selection and disciplinary processes.
	5. Responsible, on a rota with the Scientific Lead (Treatment Planning, Brachytherapy & Imaging), for the management and provision of physics services at the Satellite (Monklands) ensuring the safe and timely delivery of all aspects of clinical and technical physics services.
	6. Authorises the purchase of specialised spare parts for radiotherapy equipment to a value (approx £10k) designated by the Head of Radiotherapy Physics.
	7. Responsible for the dosimetric chain, ensuring all external beam treatment units and Brachytherapy Afterloaders are kept in calibration, in accordance with national codes of practice, and for the traceability and inter-comparison of all dosimetry and associated equipment to national standards. Ensure each item of equipment is correctly calibrated and its performance is monitored against required standards. Plan, organise and coordinate calibration schedules and cross-calibrations.
	8. Develop policies, procedures and work instructions to implement changes in legislation, professional guidelines, clinical practice and technology. Collaborate with Therapeutic Radiography regarding the impact of changes and to develop joint protocols where required.
	9. Responsible for the continuous and safe provision of the essential equipment and systems delivering clinical treatment delivery services namely, linear accelerators, x-ray therapy units, computer networks and software, and verification systems. Optimise their clinical availability and uptime.
	10. Responsible for the provision and availability of staff and resources in their team, and specifically Medical Physics Experts, to ensure the safe delivery of day to day Dosimetry & Equipment services including relevant rotas during public holidays and weekends, where necessary, to ensure availability of adequate scientific staff by implementing staff-interchange arrangements to meet service requirements, maintain flexibility and optimise staff development
	11. Authorises and signs to accept specialised radiotherapy equipment into clinical use following installation, replacement or repair.
	12. Ensures that work undertaken by staff in Dosimetry & Equipment consistently meets high professional and scientific standards and complies with applicable legislation and national quality standard and is expected to interpret national guidelines and policies to implement relevant changes in working practices.
	13. Works closely with Scientific Lead (Treatment Planning, Brachytherapy & Imaging) to ensure an integrated clinical physics service is provided, and ensures high standards of communication particularly when dealing with highly complex information covering all aspects of the delivery of the service.
	14. Responsible as a System Manager for specialised clinical radiotherapy systems including those designed in-house, for treatment planning, patient management, dose calculation and quality assurance, and safeguarding the provision of accurate records of patient dose calculations in accordance with medicolegal requirements, the General Data Protection Regulations (GDPR) and organisational Policies. Allocates System Administrators to support day to day system management.
	15. Responsible for chairing, leading and coordinating Radiotherapy Physics, DCPB and Beatson committees, working parties and managing projects to eg. deliver complex new or modified radiotherapy equipment and facilities.
	16. Take a lead role in liaising with Radiation Protection Advisers and Radiation Protection Supervisors on matters of radiation safety for staff, patients and the public, including the design of new and modified facilities and making provision for the safety of outside workers.
	17. Prepares and submits reports, performance data, statistical information etc, relevant to the running of the team.
1. Clinical Scientific
	1. Acts as a Medical Physics Expert, under the Ionising Radiation (Medical Exposure) Regulations 2017, where approved by Head of Radiotherapy Physics and Scientific Director.
	2. Acts as an Operator, under the Ionising Radiation (Medical Exposures) Regulations 2017.
	3. Plays a major role in the delivery of the Board’s radiotherapy capital programmes, the assessment of service needs, evaluation of new equipment, treatment techniques and new computerised technologies, the procurement of high value radiotherapy capital equipment (>£6M) including the preparation of relevant business cases, project plans, technical specifications, assessment criteria etc. Supervises, arranges and participates in the scientific and technical evaluation of new equipment and systems both before purchasing decision and after installation.
	4. Responsible for the formulation, implementation and maintenance of quality assurance procedures designed to ensure consistently high standards of treatment delivery services in the Beatson. participates as necessary in routine quality assurance testing.
	5. Undertakes negotiations, often complex, involving other staff groups and external bodies including equipment manufacturers, hospital staff, architects, contractors etc.
	6. Responsible for accepting and advising on high capital value repairs to radiotherapy equipment / radiotherapy IT equipment (annual budget of c£250K) and advising on equipment / software maintenance contracts (annual budget of c£300k).
	7. Works closely with medical, scientific, technical, radiography and other clinical staff to identify safety issues, diagnose faults, undertake equipment repair/modifications, including working in clinical areas and working with equipment manufacturers.
	8. Advises architects, consulting engineers and Board officers, on the planning of new and modified radiation facilities for radiotherapy.
	9. Responsible for interpreting and implementing quality standards and polices, the preparation of written protocols to ensure compliance with the Beatson’s ISO Quality System and applicable legislation including the Ionising Radiations Regulations 2017 and Ionising Radiation (Medical Exposure) Regulations 2017, and the provision of a range of support services in accordance with national requirements and consistent with the Beatson’s reputation as an international centre of excellence.
	10. Responsible for the provision of servicing, QA and programmes of planned preventative maintenance required to optimise the performance of external beam equipment, computer networks/software and computerised verification systems directly relevant to the operation of all radiotherapy treatment units, simulators and other radiotherapy related equipment in the Beatson.
	11. Ensures that relevant health and safety, electrical, mechanical, radiation safety and IT standards are met and fulfilled for work on radiotherapy equipment, computerised systems and software and that the work is kept up to date with national and international standards.
	12. Actively contribute to local and national incident management and shared learning systems, leading investigations and preparing learning reports as required.
	13. Responsible for the development and integration of new technologies, clinical techniques and computer technologies and takes responsibility for quality assurance of all external beam radiotherapy related equipment used by the Beatson (eg linear accelerators, x-ray therapy unit, RT servers and data stores). This includes the work to optimise the networking of radiotherapy equipment and associated information systems in the Beatson through appropriate local area, wide area, metropolitan and web based technologies, ensuring liaison with the eHealth as required.
	14. Responsible for ensuring that all software designed and implemented by the service, particularly that intended for clinical use, complies with and fulfils the requirements of applicable legislation and national and international standards e.g. the General Data Protection Regulation, ISO standards (ISO 12207, ISO 27002), organisational policies, contributing and adhering to DCPB procedures for software development. Responsible for life cycle management of this software and the production and distribution of relevant software documentation.
	15. Initiates, designs and directs improvements to radiotherapy equipment, networked systems, software and ancillary equipment as necessary.
	16. Takes a lead in the evaluation of, and implements actions resulting from, equipment safety action notices, adverse equipment/software performance, product notifications etc relevant to their service.
	17. Designs, prepares and submits routine performance monitoring information and reports, statistical information and other documents and in particular, that relevant to the operation of Dosimetry & Equipment.
	18. Acts as the scientific lead and participates in the installation, commissioning and acceptance testing of new, replacement and upgraded radiotherapy equipment, associated computerised systems and networks. Accepts and signs for radiotherapy equipment being safe for introduction into clinical use and is responsible for ensuring that appropriate testing has been undertaken.
	19. Works together with the Scientific Lead (Treatment Planning, Brachytherapy & Imaging) in controlling the quantity and quality of the radiation produced by radiotherapy equipment.
	20. Advises and instructs Consultant Oncologists, medical and radiography staff on the feasibility of implementing new patient treatments using radiotherapy equipment and leads and supervises in their implementation ensuring the safe and proper use of radiotherapy equipment.
	21. Ensures that the work undertaken by Dosimetry & Equipment complies with the Health and Safety at Work, etc. Act and with other applicable legislation, national quality standards and organisational procedures and policies, as appropriate. This includes the preparation and supervision of risk assessments.
2. **Teaching and Training**
	1. Plans, designs and delivers appropriate specialist scientific training on all aspects of treatment delivery and radiation protection to Clinical Physicists, Clinical Technologists, Oncologists, nurses, students and trainees and to other staff groups as required. This includes staff undertaking formal training schemes such as the IPEM trainee schemes, the Scottish Medical Physics and Clinical Engineering Training Scheme (SMPCETS) or Fellowship examinations.
	2. Designs and delivers components of the Radiotherapy Physics course of the University of Glasgow MSc Training Programmes for Clinical Scientists and other graduate and undergraduate courses including delivering lectures, preparing training material, undertaking tutorials etc.
	3. Ensures that staff within Dosimetry & Equipment and the Clinical Physicist Pool maintain and develop their knowledge, skills and experience in accordance with the Knowledge and Skills Framework (KSF), Continuing Professional Development (CPD) and requirements for Personal Development Planning (PDP).

**D. Research and Development**Research and development are essential for continuous service improvement and to ensure that the potential of complex new equipment, facilities and treatment modalities is fully realised. The postholder:* 1. Initiates, plans, supervises and supports appropriate research and service development projects within Radiotherapy Physics and specifically within Dosimetry & Equipment and the Clinical Physicist Pool.
	2. Plans, supervises and participates in the commissioning and acceptance testing of newly developed and modified devices and systems for patient treatment including those designed and constructed in-house.
	3. Initiates, designs and directs scientific developments and, where relevant, pursues commercial exploitation.

**E. Professional*** 1. Undertakes the CPD necessary to maintain registration as a Clinical Scientist, certification as a Medical Physics Expert and to continue to deliver a high quality service and take a leading role in service developments. This includes attending suitable seminars and manufacturers’ specialist residential courses in order to keep up to date with the latest scientific and technological developments and their clinical applications in radiotherapy.
	2. Keeps informed on scientific progress in radiotherapy physics and on relevant legislation through literature, attendance at meetings, personal reading etc
	3. Plans and delivers scientific presentations to small and large audiences on research findings and results, scientific developments, etc.
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| **7. SYSTEMS AND EQUIPMENT** |
| The postholder must have specialist knowledge and understanding of the theory, operation, function and operating principles of highly complex radiotherapy equipment and computerised systems, including the following: * 1. Highly complex equipment related to radiation treatment delivery including linear accelerators with multileaf collimators, stereotaxy delivery systems, on-board x-ray imaging systems, portal imaging devices, dosimetry calibration systems, radiation room safety systems, and laser alignment systems for patient positioning.
	2. Highly complex computerised patient radiotherapy treatment recording and verification systems, including the radiotherapy patient information system, associated networked systems used to manage patient treatment data and medical images, data and image communication standards including DICOM, HL7, etc
	3. Other radiation treatment equipment including kilovoltage x-ray equipment, brachytherapy afterloading equipment, therapeutic radiation sources and associated handling equipment.
	4. Equipment used in the design of patients’ radiation treatments including x-ray treatment simulators, CT simulators, diagnostic x-ray equipment, electronic contouring systems and networked computerised treatment planning systems.
	5. Radiation treatment measurement and quality assurance equipment including beam data acquisition systems, radiation beam profilers, ion chambers, imaging phantoms, solid state dosimetry equipment, personal and environmental dose monitoring equipment.
	6. Resilient networked computer technologies eg TCP/IP, patient critical server hardware, PC systems, critical data archiving systems, computer peripherals, interfaces, routers, switches, network infrastructure, wireless systems and data exchange standards.
	7. Highly complex mathematical algorithms applied in the calculations used by treatment planning software and systems.
	8. Highly complex Radiotherapy Treatment Planning systems, including the Eclipse Treatment Planning system.
	9. System administration, design, construction and modification of highly complex networked medical database systems (eg. MS SQL Server), spreadsheets and a range of quality assurance and medical equipment management software and systems used extensively by Dosimetry & Equipment.
	10. Microsoft Windows Operating Systems for PCs and servers and other software systems including Microsoft Word, Excel, Access, PowerPoint and Project and programming tools for project design
	11. Software and database programming methods, tools and systems including e.g. Visual Basic, Visual C++, SQL, XML, macro language.
	12. ISO9001:2015 Quality Management System. (The service is currently working towards UKAS medical physics service accreditation against BS70000:2017.)
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| **8. DECISIONS AND JUDGEMENTS** |
| The postholder, as one of the lead professionals in radiotherapy physics, will act with a high degree of autonomy and will use their own initiative and authority to prioritise and direct individual and team actions and determine their work plans. Work is self-directed and managed on demand to agreed deadlines. The postholder will make decisions and judgements required to:* 1. Manage effectively the comprehensive clinical scientific and technical physics services within their area, making highly specialist judgements and decisions which impact across the clinical services within the Beatson.
	2. Contribute to the effective management and formulation of plans for the continuous development of the Radiotherapy Physics service as a member of the Radiotherapy Physics Senior Management Team.
	3. Analyse and interpret complex, multifaceted scientific information that may be incomplete, departmental policies, quality standards, legislation, etc to implement within the clinical service and to make critical decisions under pressure.
	4. Manage and contribute to changes in operating policies and quality system procedures relevant to their area that have an impact on other professions and the clinical service within the Beatson.
	5. Manage workflow with a high volume of requests and changing objectives, assign priorities and adapt these to meet changing clinical demands.
	6. Justify and argue the costs arising from the management of high value medical equipment and undertake financial negotiation with equipment manufacturers, for example the purchase of high value capital equipment.
	7. Manage, counsel and reassure staff and deal with a range of personnel issues.
	8. Manage and maintain confidential staff and patient information including sensitive clinical details of which the patient may be unaware.
	9. Negotiate and obtain agreement/cooperation from other staff groups relating to quality assurance, repair, etc.
	10. Persuade and influence management and clinical colleagues in the multidisciplinary team on the importance of appropriate changes and developments in clinical working practice.
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| 1. **COMMUNICATIONS AND RELATIONSHIPS**
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| The postholder, who works closely with the Head of Radiotherapy Physics, the Senior Management Team, Section Heads and Beatson management and colleagues:* 1. Must have excellent verbal and written communication skills to explain decision and results of a highly complex scientific nature to a wide range of staff and other organisations that may be based outside of the UK.
	2. Must have ability to communicate clearly and concisely to a wide range of staff groups, up to and including senior medical and management executives, presenting options and risks in the context of the patient situation, and in cases where the recipient may have limited understanding of the scientific complexities of the situation.
	3. Chairs and participates in a variety of internal Radiotherapy Physics, DCPB and Beatson senior management, staff, scientific and project management meetings as part of performance monitoring, equipment issues, development projects etc.
	4. Supervises and prepares a range of scientific documentation, reports and data sheets detailing expert advice and presentation of highly complex information, taking account of published scientific literature and where there may be uncertainty as to the clinical consequences of the findings.
	5. Provides expert scientific advice to the Head of Radiotherapy Physics, Head of Therapeutic Radiography and other staff on matters relating to Dosimetry & Equipment.
	6. Applies tact, sensitivity, empathy and diplomacy on a regular basis.

The postholder communicates with a range of internal and external organisations including: |
| **People/Organisation** | **Purpose** |
| Radiotherapy Physics Staff | 1. Communicates frequently with decisions often of a highly complex nature and justifies and communicates thoroughly reasons for decisions. Communicates daily with Section Heads.
2. Leads in staff discussions on wide-ranging strategic and service issues and sets standards and policies
3. Communicates with scientific colleagues at other Radiotherapy Centres both in the UK and abroad.
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| Clinical Oncologists, Therapeutic Radiographers, Nurses | 1. Communicates and negotiates on all matters relating to the provision of the service, equipment matters, etc. Communicates to gain a clear understanding of problems with equipment and advises on equipment issues, upgrades, etc.
2. Leads and collaborates on scientific and technical developments in clinical practice and provides scientific advice on equipment use, treatment techniques, departmental procedures and effective use of resources. Provides training as appropriate.
3. Provides expert scientific advice on clinical service developments and research projects to senior clinical and nursing staff.
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| DCPB | 1. Communicates on scientific and service issues with Clinical Physics colleagues in other sections within DCPB and participates in committees as necessary.
2. Provides assurance to the Scientific Director that training and competency records are up to date for all duty holders under IR(ME)R 2017.
3. Collaborates with staff across DCPB to develop and implement pan-DCPB policies and procedures.
4. Engages with partnership representatives on topics affecting staff.
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| Postgraduate Students and Trainees | 1. Gives lectures, tutorials and scientific advice to MSc students, trainee clinical scientists, trainee clinical technologists, physics students, medical students, registrars, student radiographers, nurses, etc.
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| Manufacturers’ Agents | 1. Discusses detailed and complex scientific information about radiotherapy equipment and specialised software and computer systems.
2. Resolves problems and faults on radiotherapy equipment and associated safety systems. Determines upgrades and project plans. Negotiates and escalates issues as necessary
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| Beatson Staff and Other Professionals within NHS Greater Glasgow & Clyde | 1. Participates in wide range of meetings within and between departments.
2. Shares information with Clinical Scientists and other senior professionals within and outside the department.
3. Prepares documents, reports, quality system documentation, etc
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| National NHS Committees & Wider Scientific / Medical Community | 1. Participates in national groups and organisations, where nominated.
2. Presents scientific papers to national and international conferences.
3. Participates in national scientific or professional committees, working groups, etc.
4. Contributes to national incident reporting and shared learning systems.
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| **10. PHYSICAL DEMANDS OF THE JOB** |
| * 1. Constant interruptions and frequent requirement for the postholder to change tasks, and make immediate decisions of consequence, often at short notice, that arises in a busy, demand led service in which he/she manages and leads, balancing competing priorities, short timescales and associated clinical pressures.
	2. Frequent requirement to maintain high levels of intense concentration when e.g. using computers, whilst seated in a restricted position for long periods of time for e.g. document preparation, data analysis, equipment management, modifying computer control systems.
	3. High levels of mental agility, numerical competency, coordination and spatial awareness are required for managing and supporting the highly complex computerised radiotherapy information, verification and imaging systems and software.
	4. Frequent requirement to manage challenging and stressful situations/meetings on service and staffing matters, negotiate changes to working practices, give unwelcome news to staff, e.g. of poor performance at appraisal or non-appointment following interview. Provide continuous support and encouragement for professional and service development and provide support to staff experiencing personal difficulty within their employment.
	5. Regular requirement to respond to urgent treatment equipment problems, make rapid decisions, and implement essential actions which could affect patient treatment such as recommending withdrawal of equipment from clinical use.
	6. Requirement to exert moderate physical effort and to undertake high precision machine QA checks, requiring fractional millimetre accuracy with manual dexterity, which may require the lifting and handling of heavy equipment (QA equipment, phantoms, shielding blocks, etc).
	7. Occasional requirement for fault diagnosis and safety decisions in emergency situations requiring stressful communications with medical staff, radiographers and patients.
	8. Regular requirement to operate radiation equipment that produces ionising radiation and on occasion, may be exposed to ionising radiation while e.g. undertaking environmental radiation surveys as Radiation Protection Supervisor.
	9. Regular exposure to potentially distressing or emotional circumstances in clinical areas where cancer patients receive radiation treatment, including occasional exposure to distressing or emotional circumstances.
	10. Occasional exposure to unprotected equipment when safety systems are overridden during servicing or repair, exposed compressed gases, high-temperature plant rooms, chemical products and microbiological hazards.
	11. Occasionally, may have unavoidable exposure to body fluids when in attendance in clinical areas.
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| **11. MOST CHALLENGING/DIFFICULT PARTS OF THE JOB** |
| The most challenging aspects are to:* 1. Work to demanding professional standards with a high level of commitment and drive to provide a high quality scientific service necessary to maintain the Beatson’s reputation as an international centre of excellence. Work is often required to be undertaken outside of normal working hours or on public holidays.
	2. Respond to a variety of demand led situations in an assured and tactful way to achieve an effective outcome, particularly when patient safety could be compromised and/or when clinical pressures are applied by users to prioritise clinical urgencies.
	3. Maintain an effective service to specification and dealing with highly complex problems in a rapidly-changing clinical environment characterised by competing, changing priorities and timescales.
	4. Cope with high workloads and demands in one of the largest cancer centres in the UK for both routine and developing services.
	5. Undertake strategic planning and communicate with senior staff in various disciplines in areas of constant and rapid service development.
	6. Manage and motivate scientific and technical staff to produce high quality work in difficult and intellectually demanding fields, and where the clinical consequence of unintended error is significant.
	7. Maintain safety critical operation and reliability of radiotherapy equipment and systems in line with rapidly changing technologies, service developments and changing guidelines issued by government agencies, advisory bodies and manufacturers.
	8. Design and implement specialist information, performance monitoring and data management systems to support service developments including new treatment techniques and complex new radiotherapy technologies.
	9. Maintain specialist knowledge continuously across a broad range of highly complex scientific areas in line with constantly changing technology in radiotherapy.
	10. Make decisions that may run counter to the desires/pressures of colleagues or other staff groups for instance when assessing service needs and setting appropriate staffing numbers/grades; balancing service and safety.
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| **12. KNOWLEDGE, TRAINING AND EXPERIENCE REQUIRED TO DO THE JOB** |
| **ESSENTIAL****Qualifications**A 1st or upper 2nd class honours degree in Physics or allied subject is essential. Possession of a recognised MSc in Medical Physics and a Dip IPEM in Physical Sciences in Medicine or equivalent experience and knowledge is required. A PhD degree or equivalent is essential at this level. State Registration as a Clinical Scientist by the Health and Care Professions Council (HCPC) and certification by RPA2000 as a Medical Physics Expert are essential. Strong evidence of participation in research and/or service development activities is essential. Knowledge and TrainingStaff at this level require specialist scientific and staff management skills, resource management, in depth knowledge and understanding gained by professional qualifications, training and practical experience. This will encompass:* 1. The theory, operation, function and purpose of the highly complex medical equipment listed in Section 7.
	2. A specialised knowledge of radiotherapy equipment and computerised systems, equipment management, radiation physics, radiation protection, including quality control and safety testing and an in depth knowledge of relevant legislation, national standards and quality systems.
	3. A high level of in-depth understanding of patient and staff risks arising from equipment failure or misuse and how these can be minimised.
	4. Policies and practices for managing medical equipment including planned preventative maintenance, inspection, testing, calibration and repair.
	5. Commitment to Continuing Professional Development (CPD) by the ongoing attendance at relevant study days, short courses and presentations for generic and specific competency on a wide range of complex medical equipment and their impact on clinical management, fulfilling the requirements of the Health and Care Professions Council (HCPC) and RPA2000 as appropriate.

**Behavioural Competencies****Experience*** 1. Significant scientific and managerial experience within the clinical Radiotherapy Physics environment that includes a substantial level of responsibility relevant to Radiotherapy Dosimetry and Technology.
	2. Evidence of experience in scientific research and/or service development.
	3. Good understanding of the Risk Management process and application.
	4. Practical experience in operation of a range of highly complex X-ray equipment and instruments for radiation measurement.
	5. Expert Knowledge of UK protocols for radiation dosimetry of both MV and kV beams.
	6. Experience acquired by working proactively in close relationship with lead clinicians/practitioners in specialist areas.
	7. Thorough knowledge of relevant legislation, national standards, professional and other guidelines.
	8. Substantial evidence and experience in giving presentations at local, national and international scientific meetings and lectures to groups of professional health care staff at the appropriate level.
	9. Effective written and verbal communication, listening and interpersonal skills and time management skills
	10. Evidence of the ability to work unsupervised, use own initiative and participation in a multidisciplinary team of scientists, technical staff, radiographers, clinicians and/or nursing staff.
	11. Ability to manage and supervise all groups of staff and flexibility to provide high quality patient care

**DESIRABLE*** 1. Experience of involvement and/or membership of professional organisations or committees eg. RCR, BIR, IPEM
	2. Evidence of leading in scientific innovations, clinical trials and clinical service improvements.
	3. A wide range of competencies across a wide range of treatment delivery activities and duties
	4. Training on staff management/leadership/appraisal/development
	5. Experience in the use of project management tools and systems
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**Radiotherapy Physics Organisation Chart**